Description of Siemens Lowel Wastewater Operation:

IWPS Description

Transmittal No. W202783

The neutralization system has been engineered to ensure compliance with the City of Lowell discharge specifications per permit # 058. The feed water from our manufacturing process must be neutralized prior to discharge.

The neutralization system consists of the following major equipment:

- 1,150 gallon polypropylene collection tank
- 1,000 gallon HDPE reaction tank
- 2 chemicals pH adjust storage drums, installed over safety containment tanks with chemical feed pumps.
- Control Panel with PLC controller, pH monitors/controllers, switches alarms and lights.
- Flume with a pH probe/meter and an ultrasonic flow sensor, both of which are connected to dual pen chart recorder

A buried 1,150 gallons polyethylene adjustment tank in the vicinity of Column C-6 receives discharge from the production assembly/test areas as well as the research laboratories through one of three 4" inlets.

The wastewater is pumped from the floor tank to a 1,000 gallons reaction tank which is located adjacent to the floor tank.

A probe in the reaction tank senses the pH of the influent and sends a signal to the pH analyzer in the wall mounted control panel.

The pH analyzer is wired to two chemical feed pumps. Either a 25% sodium hydroxide (base) solution or a sulfuric acid solution is added to the tank as required to maintain the acceptable discharge pH.

A propeller type mixer in the reaction tank runs continuously and water is monitored by a separate pH probe.

A second probe monitors effluent discharge from the reaction tank. At this point acceptable effluent is sent to the flume for discharge.

The final pH monitor located at the flume is not chemically adjusted and its alarm set points are set for pH of 5.0 and 9.5 per City of Lowell specifications.

The pH signal at the flume is relayed from the analyzer to a 7day strip chart recorder with a pen.

The pH analyzer is also wired to a high and low ph alarm (horn and light) which will sound if the pH of the treated effluent, is above or below preset limits (limits are 5.0 to 9.5).

The control panel is equipped with a push-to-silence button for manual alarm shut-off.

The treated discharge from the flume exits the flume and ties into the buildings sanitary system.

The support and maintenance of this system is done by 2 Siemens licensed wastewater treatment plant operators. These operators do daily checks and weekly calibration of the pH probing system. The operators submit semi annual reports to the City of Lowell. Wastewater analysis is performed by Alpha Analytical Laboratories.